**Voter Turnout Decline and Party Responsiveness**

**Supplementary Information File**

1. Table A1. **Centrist Abstention and Turnout Changes – Multilevel Model (Full Model)**
2. Table A2. **Replication Table A1 with Binary Indicator for Centrist Voters**
3. Figure A1: Predicted Probabilities of Voting Based on Individual-Level Analyses (Table A2)
4. Table A3. Political Parties Included in the Empirical Analyses, 1977-2017
5. Figure A2. Marginal Effects Plot (Hainmueller et al. 2019)
6. Figure A3: Marginal Effects Plots for the Differential Effect Across Party Types (based on Table 3)
7. Table A4. Alternative Model Specifications of Changes in Party Position
8. Table A5. Error Correction Model of Changes in Parties’ Left-Right Positions
9. Table A6. Models Stratified by Turnout Context (Low and High Turnout Elections)
10. Table A7. Including Decade Dummy Variables
11. Figure A4. Jackknife Analyses
12. Table A8. Alternative Public Opinion Windows for the Eurobarometer Surveys
13. Table A9. Omitting Parties with Incomplete Election Manifestos
14. Table A10. Addressing Minor Changes in the Mean Voter Position
15. Table A11. Controlling for Conditioning Variables
16. Table A12. Harmful and Benign Mean Voter Shifts and Party Responsiveness
17. Figure A5. Marginal Effects Plots for Harmful Mean Voter Shifts (Left Panel) and Benign Mean Voter Shifts (Right), Based on Table A12 Model 2 Estimates
18. Table A13: Analyses of Changes in Party Position, based on *Mean Voter (t)* Estimates from 4 to 12 Months Prior to the Election

**Table A1: Citizen Ideology, Turnout, and Changes in Turnout Individual-Level**

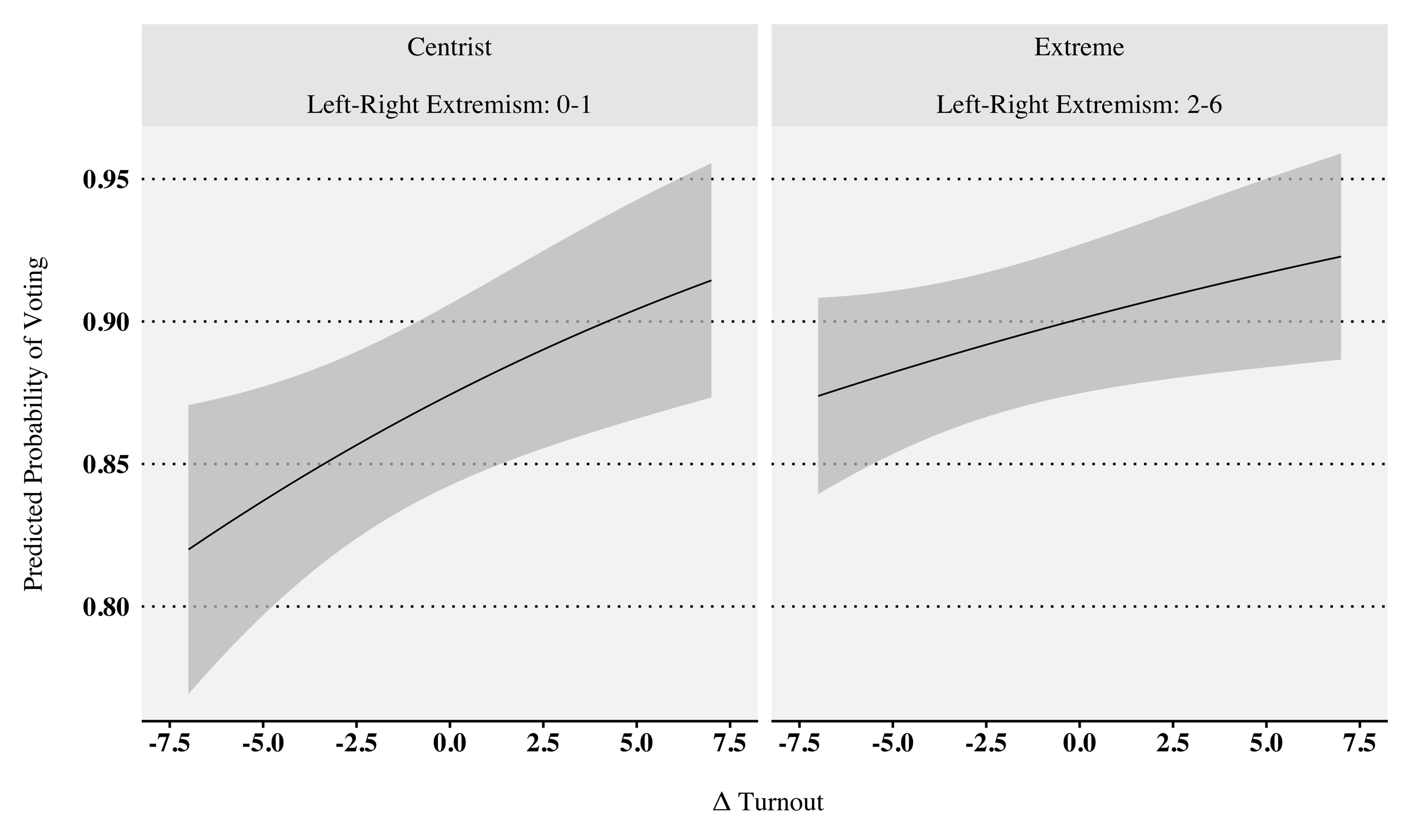
**Analyses (Full Models)**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | DV:Turnout (Individual-Level) | | | |
|  | (1) | (2) | (3) | (4) |
|  |  |  |  |  |
| Gender [Base: Male] |  | .005 |  | .004 |
|  |  | (.057) |  | (.057) |
| Age |  | .078\*\*\* |  | .078\*\*\* |
|  |  | (.011) |  | (.011) |
| Age (squared) |  | -.001\*\*\* |  | -.001\*\*\* |
|  |  | (.000) |  | (.000) |
| Education: Prim./Lower Sec. |  | .362\*\*\* |  | .362\*\*\* |
| [Base: No Education] |  | (.112) |  | (.111) |
| Education: Higher Sec. |  | .578\*\*\* |  | .577\*\*\* |
|  |  | (.117) |  | (.115) |
| Education: Post-Sec. |  | .713\*\*\* |  | .710\*\*\* |
|  |  | (.130) |  | (.129) |
| Education: University |  | 1.029\*\*\* |  | 1.028\*\*\* |
|  |  | (.139) |  | (.138) |
| Union Member |  | .267\*\*\* |  | .268\*\*\* |
|  |  | (.058) |  | (.059) |
| Household Income (Quintiles) |  | .148\*\*\* |  | .148\*\*\* |
|  |  | (.025) |  | (.025) |
| Unemployed [Base: Employed] |  | -.418\*\*\* |  | -.416\*\*\* |
|  |  | (.159) |  | (.159) |
| No Satisfaction Dem. [1-4] |  | -.384\*\*\* |  | -.383\*\*\* |
|  |  | (.076) |  | (.076) |
| **Left-Right Extremism [0-6]** | **.090\*\*\*** | **.102\*\*\*** | **.073\*\*\*** | **.088\*\*\*** |
|  | **(.025)** | **(.021)** | **(.023)** | **(.020)** |
| **Δ Turnout** |  |  | **.071\*\*\*** | **.061\*\*** |
|  |  |  | **(.026)** | **(.025)** |
| **Left-Right Ext. \*Δ Turnout** |  |  | **-.012\*\*** | **-.010\*\*** |
|  |  |  | **(.005)** | **(.004)** |
| Constant | 2.059\*\*\* | -.365 | 2.115\*\*\* | -.314 |
|  | (.180) | (.467) | (.179) | (.472) |
|  |  |  |  |  |
| N Countries | 13 | 13 | 13 | 13 |
| N Country-Years | 42 | 42 | 42 | 42 |
| Var(Countries) | .268 | .140 | .248 | .137 |
|  | (.208) | (.124) | (.174) | (.104) |
| Var(Country-Years) | .271\*\*\* | .295\*\*\* | .230\*\*\* | .265\*\*\* |
|  | (.090) | (.093) | (.062) | (.078) |
| N | 48442 | 48442 | 48442 | 48442 |
| Log likelihood | -16103.1 | -15099.0 | -16092.9 | -15092.1 |
|  |  |  |  |  |
| Note: | \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | |
| Data: CSES IMD and CSES 5. Sample and demographic weights used.  Left-Right Extremism: Distance to rounded mean voter position.  Countries included: Austria, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, The Netherlands, Portugal, Spain, and Sweden. | | | | |

**Table A2: Replication of Table A1 with Binary Indicator for Centrist Voters**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | DV:Turnout (Individual-Level) | | | |
|  | (1) | (2) | (3) | (4) |
|  |  |  |  |  |
| Gender [Base: Male] |  | .009 |  | .008 |
|  |  | (.057) |  | (.057) |
| Age |  | .078\*\*\* |  | .078\*\*\* |
|  |  | (.011) |  | (.011) |
| Age (squared) |  | -.001\*\*\* |  | -.001\*\*\* |
|  |  | (.000) |  | (.000) |
| Education: Prim./Lower Sec. |  | .351\*\*\* |  | .350\*\*\* |
| [Base: No Education] |  | (.110) |  | (.109) |
| Education: Higher Sec. |  | .562\*\*\* |  | .559\*\*\* |
|  |  | (.117) |  | (.116) |
| Education: Post-Sec. |  | .698\*\*\* |  | .693\*\*\* |
|  |  | (.130) |  | (.129) |
| Education: University |  | 1.006\*\*\* |  | 1.004\*\*\* |
|  |  | (.138) |  | (.137) |
| Union Member |  | .274\*\*\* |  | .274\*\*\* |
|  |  | (.058) |  | (.058) |
| Household Income (Quintiles) |  | .147\*\*\* |  | .147\*\*\* |
|  |  | (.025) |  | (.025) |
| Unemployed [Base: Employed] |  | -.413\*\* |  | -.411\*\* |
|  |  | (.161) |  | (.161) |
| No Satisfaction Dem. [1-4] |  | -.379\*\*\* |  | -.379\*\*\* |
|  |  | (.077) |  | (.077) |
| **Left-Right Extremism [0-1 vs. 2-6]** | **.314\*\*\*** | **.327\*\*\*** | **.281\*\*\*** | **.299\*\*\*** |
|  | **(.073)** | **(.066)** | **(.066)** | **(.061)** |
| **Δ Turnout** |  |  | **.064\*\*** | **.055\*\*** |
|  |  |  | **(.027)** | **(.026)** |
| **Left-Right Ext. \*Δ Turnout** |  |  | **-.024\*\*** | **-.019\*\*** |
|  |  |  | **(.011)** | **(.010)** |
| Constant | 2.063\*\*\* | -.344 | 2.108\*\*\* | -.302 |
|  | (.180) | (.470) | (.177) | (.472) |
|  |  |  |  |  |
| N Countries | 13 | 13 | 13 | 13 |
| N Country-Years | 42 | 42 | 42 | 42 |
| Var(Countries) | .265 | .139 | .244 | .135 |
|  | (.209) | (.125) | (.174) | (.105) |
| Var(Country-Years) | .270\*\*\* | . 294 \*\*\* | . 228\*\*\* | .263\*\*\* |
|  | (.090) | (.093) | (.061) | (.078) |
| N | 48442 | 48442 | 48442 | 48442 |
| Log likelihood | -16085.1 | -15090.7 | -16078.9 | -15068.2 |
|  |  |  |  |  |
| Note: | \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | |
| Data: CSES IMD and CSES 5. Sample and demographic weights used.  Left-Right Extremism: Distance to rounded mean voter position.  Countries included: Austria, Denmark, Finland, France, Germany, Great Britain, Greece, Ireland, Italy, The Netherlands, Portugal, Spain, and Sweden. | | | | |

**Figure A1: Predicted Probabilities of Voting Based on Individual-Level Analyses**

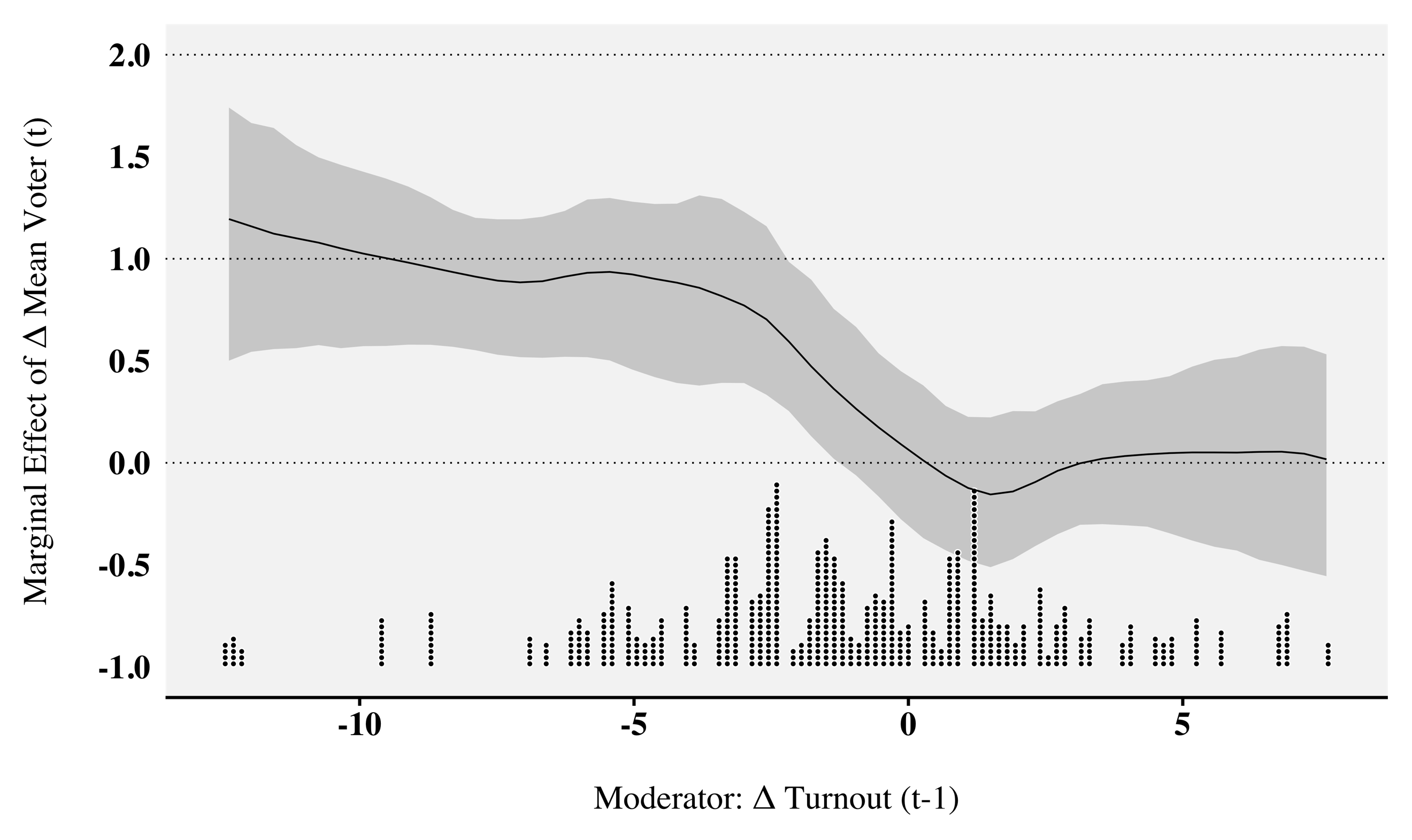
**(Table A2)**

*Note:* Confidence bands show 95% confidence intervals. Estimates based on Model 3 in Table A2.

**Table A3: Political Parties Included in the Empirical Analyses, 1977-2017**

|  |  |  |  |
| --- | --- | --- | --- |
| **Country** | **Party** | **Party Family** | **Dominant/**  **Challenger** |
| Austria | GRÜNE: The Greens | 10 | Challenger |
|  | SPÖ: Austrian Social Democratic Party | 30 | Dominant |
|  | ÖVP: Austrian People’s Party | 50 | Dominant |
|  | FPÖ: Austrian Freedom Party | 70 | Dominant since 1983 |
| Denmark | SF: Socialist People’s Party | 20 | Dominant since 2011 |
|  | VS: Left Socialist Party | 20 | Challenger |
|  | EL: Red-Green Unity List | 20 | Challenger |
|  | DKP: Danish Communist Party | 20 | Challenger |
|  | SD: Social Democratic Party | 30 | Dominant |
|  | Liberal Alliance | 40 | Challenger |
|  | RV: Danish Social-Liberal Party | 40 | Dominant |
|  | V: Liberals | 40 | Dominant |
|  | K: Christian Democrats  (also KrF: Christian People’s Party) | 50 | Dominant since 1981 |
|  | KF: Conservative People’s Party | 60 | Dominant |
|  | CD: Centre Democrats | 60 | Dominant since 1981 |
|  | FP: Progress Party | 70 | Challenger |
|  | DF: Danish People’s Party | 70 | Challenger |
|  | RF: Justice Party | 95 | Dominant |
| Finland | VL: Green Union | 10 | Dominant |
|  | VAS: Left Wing Alliance | 20 | Dominant |
|  | SSDP: Finnish Social Democrats | 30 | Dominant |
|  | KD: Christian Democrats in Finland | 50 | Dominant |
|  | KK: National Coalition | 60 | Dominant |
|  | PS: True Finns | 70 | Dominant |
|  | SK: Finnish Centre | 80 | Dominant |
|  | RKP/SFP: Swedish People’s Party | 90 | Dominant |
| France | EÉLV: Europe Ecology - The Greens  (also Les Verts: The Greens) | 10 | Dominant since 1997 |
|  | PCF: French Communist Party  (also FDG: Left Front) | 20 | Dominant |
|  | PS: Socialist Party | 30 | Dominant |
|  | Union for a New Majority - Conservatives/Gaullists | 60 | Dominant |
|  | RPR: Rally for the Republic  (also Union for a New Majority - Gaullists) | 60 | Dominant |
|  | MoDem: Democratic Movement  (also UDF: Union for French Democracy) | 60 | Dominant |
|  | The Republicans  (also UMP: Union for a Popular Movement) | 60 | Dominant |
|  | FN: National Front | 70 | Challenger |
| Germany | 90/Greens: Alliance‘90/Greens  (also Greens/90: Greens/Alliance‘90) | 10 | Dominant since 1998 |
|  | LINKE: The Left  (also L-PDS: The Left. Party of Democratic  Socialism; PDS: Party of Democratic Socialism) | 20 | Challenger |
|  | SPD: Social Democratic Party of Germany | 30 | Dominant |
|  | FDP: Free Democratic Party | 40 | Dominant |
|  | CDU/CSU: Christian Democratic Union/Christian  Social Union | 50 | Dominant |
| Greece | KKE: Communist Party of Greece | 20 | Dominant since 1989 |
|  | SYRIZA: Coalition of the Radical Left  (also: Synaspismos) | 20 | Dominant since 1989 |
|  | PASOK: Panhellenic Socialist Movement | 30 | Dominant |
|  | ND: New Democracy | 50 | Dominant |
|  | ANEL: Independent Greeks | 70 | Challenger |
|  | XA: Golden Dawn | 70 | Challenger |
| Ireland | Greens: Green Party | 10 | Dominant since 2007 |
|  | WP: Workers’ Party | 20 | Challenger |
|  | SF: We Ourselves | 20 | Challenger |
|  | Labour: Labour Party | 30 | Dominant |
|  | PD: Progressive Democrats | 40 | Dominant since 1989 |
|  | Family of the Irish | 50 | Dominant |
|  | Soldiers of Destiny | 60 | Dominant |
| Italy | FdV: Green Federation | 10 | Dominant since 1993 |
|  | DS: Democrats of the Left  (also PDS: Democratic Party of the Left;  PCI: Italian Communist Party) | 20 | Dominant |
|  | PRC: Communist Refoundation Party | 20 | Dominant since 1996 |
|  | PSDI: Italian Democratic Socialist Party | 30 | Dominant |
|  | PSI: Italian Socialist Party | 30 | Dominant |
|  | Pannella-Sgarbi List  (also Pannella-Riformatori List;  LP: Pannella List; PR: Radical Party) | 30 | Challenger |
|  | PD: Democratic Party | 30 | Dominant |
|  | PLI: Italian Liberal Party | 40 | Dominant |
|  | PRI: Italian Republican Party | 40 | Dominant |
|  | PPI: Italian Popular Party  (also DC: Christian Democrats) | 50 | Dominant |
|  | UdC: Union of the Center | 50 | Dominant since 2013 |
|  | FI: Go Italy | 60 | Dominant |
|  | AN: National Alliance  (also MSI-DN: Italian Social Movement-National  Right) | 70 | Dominant since 2001 |
|  | L: League  (also LN: Northern League) | 70 | Dominant |
|  | IdV: List Di Pietro - Italy of Values | 95 | Dominant |
| Netherlands | GL: Green Left | 10 | Challenger |
|  | SP: Socialist Party | 20 | Challenger |
|  | PvdA: Labour Party | 30 | Dominant |
|  | PPR: Radical Political Party | 30 | Dominant |
|  | VVD: People’s Party for Freedom and Democracy | 40 | Dominant |
|  | D’66: Democrats‘66 | 40 | Dominant |
|  | GPV: Reformed Political League | 50 | Challenger |
|  | RPF: Reformatory Political Federation | 50 | Challenger |
|  | CU: Christian Union | 50 | Dominant since 2006 |
|  | CDA: Christian Democratic Appeal | 50 | Dominant |
|  | PVV: Party of Freedom | 70 | Challenger |
|  | SGP: Reformed Political Party | 95 | Challenger |
|  | PvdD: Party for the Animals | 95 | Challenger |
| Portugal | PCP: Portuguese Communist Party | 20 | Challenger |
|  | BE: Left Bloc | 20 | Challenger |
|  | PS: Socialist Party | 30 | Dominant |
|  | CDS-PP: Social Democratic Center-Popular Party  (also CDS: Social Democratic Center Party) | 50 | Dominant |
|  | PSD: Social Democratic Party | 60 | Dominant |
| Spain | IU: United Left | 20 | Challenger |
|  | PSOE: Spanish Socialist Workers’ Party | 30 | Dominant |
|  | CDS: Centre Democrats | 50 | Challenger |
|  | PP: People's Party | 60 | Dominant |
|  | PNV/EAJ: Basque Nationalist Party | 90 | Challenger |
|  | ERC: Catalan Republican Left | 90 | Challenger |
|  | PAR: Aragonese Party | 90 | Challenger |
|  | CiU: Convergence and Union | 90 | Challenger |
|  | EE: Basque Left | 90 | Challenger |
|  | CC-PNC: Canarian Coalit./Canarian Nationalist P.  (also CC: Canarian Coalition) | 90 | Challenger |
|  | EA: Basque Solidarity | 90 | Challenger |
|  | BNG: Galician Nationalist Bloc | 90 | Challenger |
| Sweden | MP: Green Ecology Party | 10 | Dominant since 2014 |
|  | V: Left Party | 20 | Challenger |
|  | SAP: Social Democratic Labour Party | 30 | Dominant |
|  | L: Liberals  (also FP: Liberal People’s Party) | 40 | Dominant |
|  | Kd: Christian Democrats | 50 | Dominant |
|  | MSP: Moderate Coalition Party | 60 | Dominant |
|  | SD: Sweden Democrats | 70 | Challenger |
|  | CP: Centre Party | 80 | Dominant |
| UK | Labour: Labour Party | 30 | Dominant |
|  | Liberal Party | 40 | Challenger |
|  | LibDems: Liberal Democrats | 40 | Dominant since 2010 |
|  | Conservatives: Conservative Party | 60 | Dominant |
|  | UUP: Ulster Unionist Party | 60 | Challenger |
|  | SNP: Scottish National Party | 90 | Challenger |
|  | DUP: Democratic Unionist Party | 90 | Challenger |

*Notes*: The parties participated in at least three consecutive elections according to the MARPOR dataset. In a few instances, party codes were merged in the MARPOR scheme (such as for the German Left Party/PDS, the French Communist Party/Left Front, or the Greek Coalition of the Radical Left) to maximize the time series. Party family classification according to the MARPOR coding scheme: 10 = Green parties, 20 = Communist parties, 30 = Social Democratic parties, 40 = Liberal parties, 50 = Christian Democratic parties, 60 = Conservative parties, 70 = Nationalist parties, 80 = Agrarian parties, 90 = Regional parties, 95 = Special Issue parties.

**Figure A2: Marginal Effects Plot (Hainmueller et al. 2019)**

*Notes*: The shaded area shows the 95% confidence interval. The dot plot shows the distribution of * Turnout* (t-1).

**Party Type Empirical Analyses**

We coded the different party types as follows.

First, following De Vries and Hobolt (2020), parties were coded as “dominant” from the time they first formally participated in a national government (see also Table A3).

Second, parties were coded as niche parties that belong to the communist, nationalist, ecological, or ethno-territorial party family according to the MARPOR coding scheme. In few cases our coding deviates from the MARPOR scheme. We classify Sinn Fein (Ireland) as a radical left party, the True Finns (Finland) and the Progress Party (Denmark) as radical right parties, and the Democratic Party of the Left (Italy) as a social democratic party. All other parties were coded as “mainstream” (see also Table A3).

Third, opposition parties were all parties that did not formally participate in a government at the beginning of the legislative period preceding the election in question.

Fourth, vote losing parties are those parties which experienced a negative vote change between elections t-2 and t-1.

Fifth, small parties are those parties that gained less than 10% of the national vote in the previous election.

Sixth, political parties were coded as extreme if their left-right position deviated more than one standard deviation from the mean position of all parties (weighted by party size) in the previous election.

**Figure A3: Marginal Effects Plots for Different Party Types (based on Table 3)**

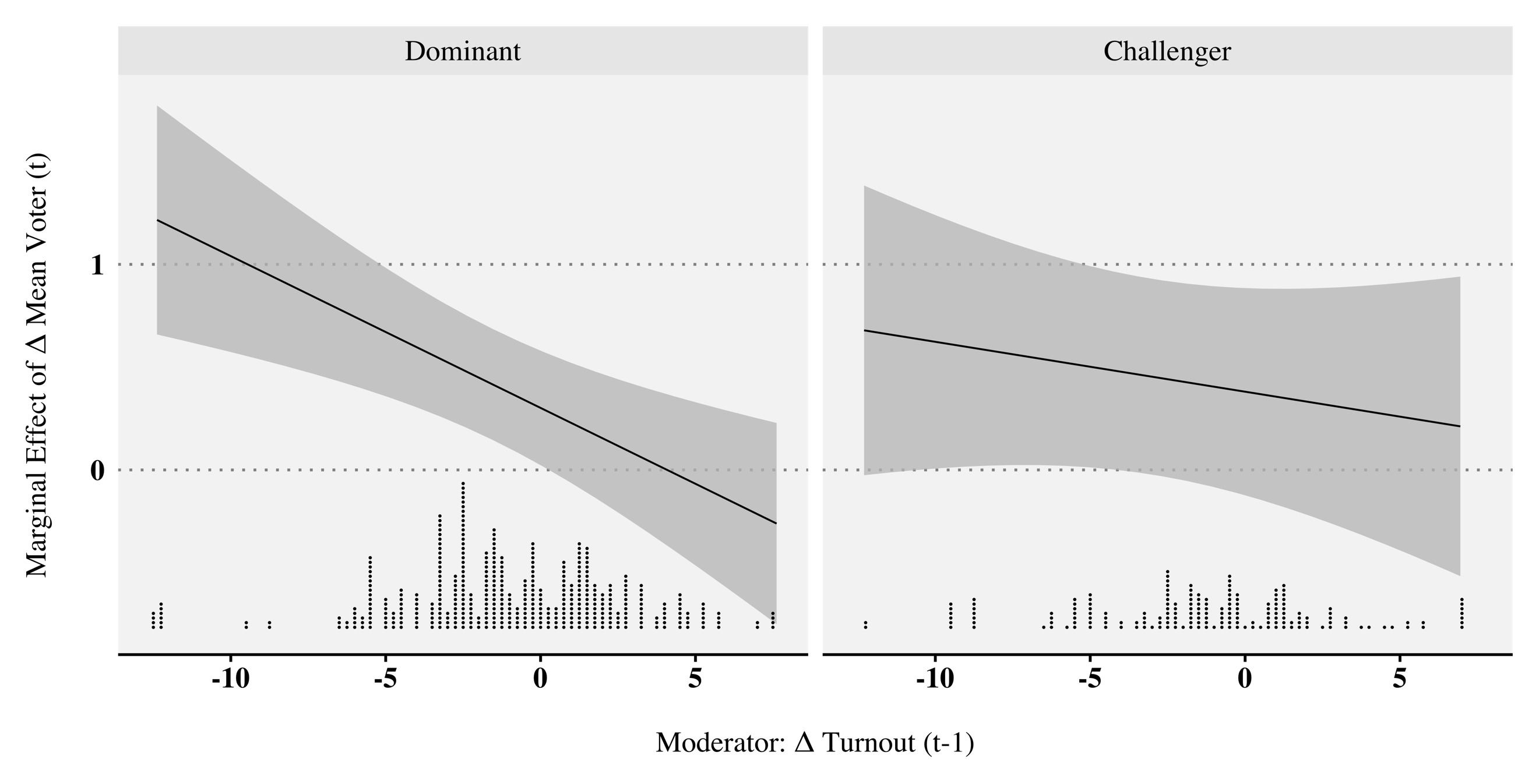


Figure A3.1: Dominant and Challenger Parties

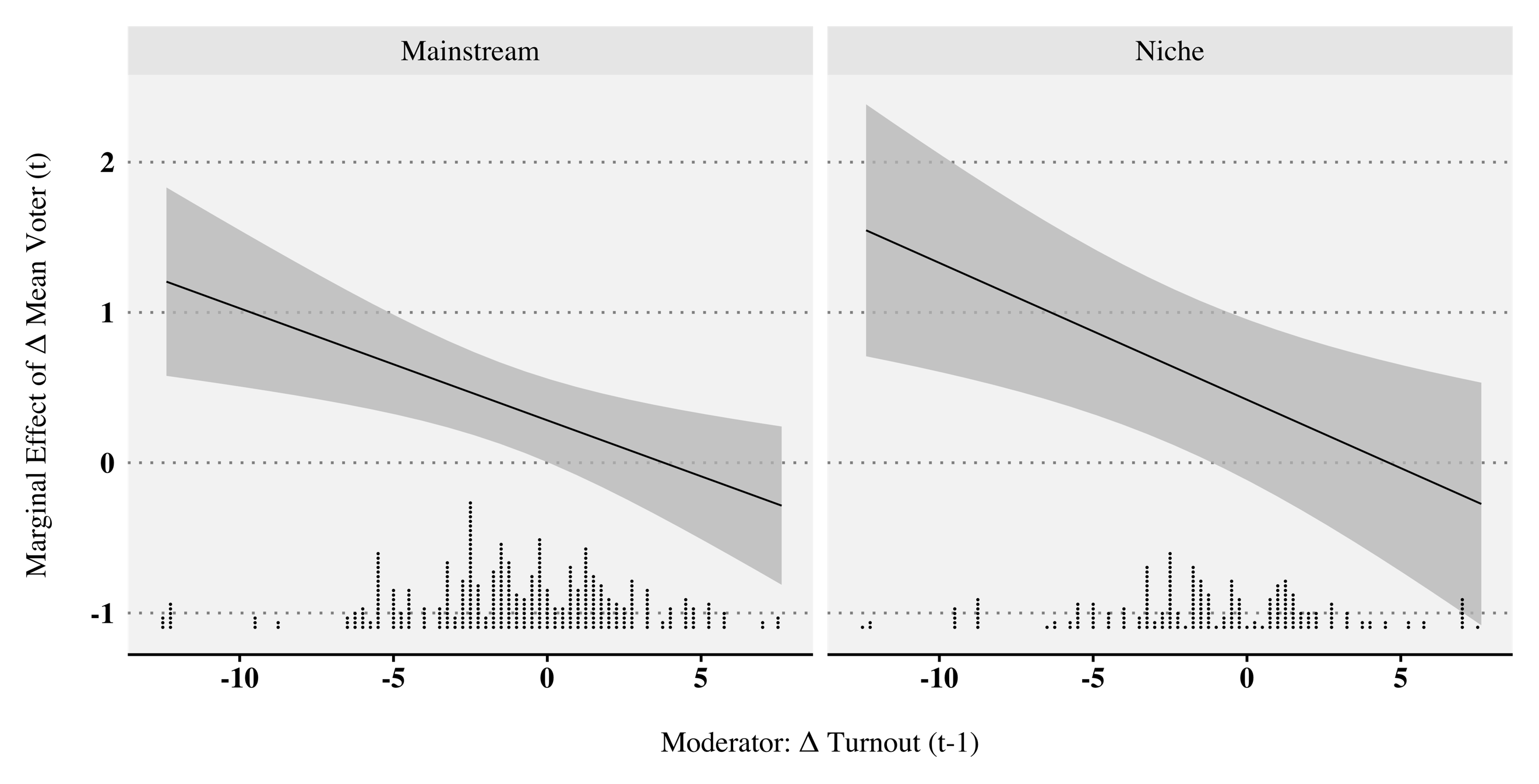


Figure A3.2: Mainstream and Niche Parties

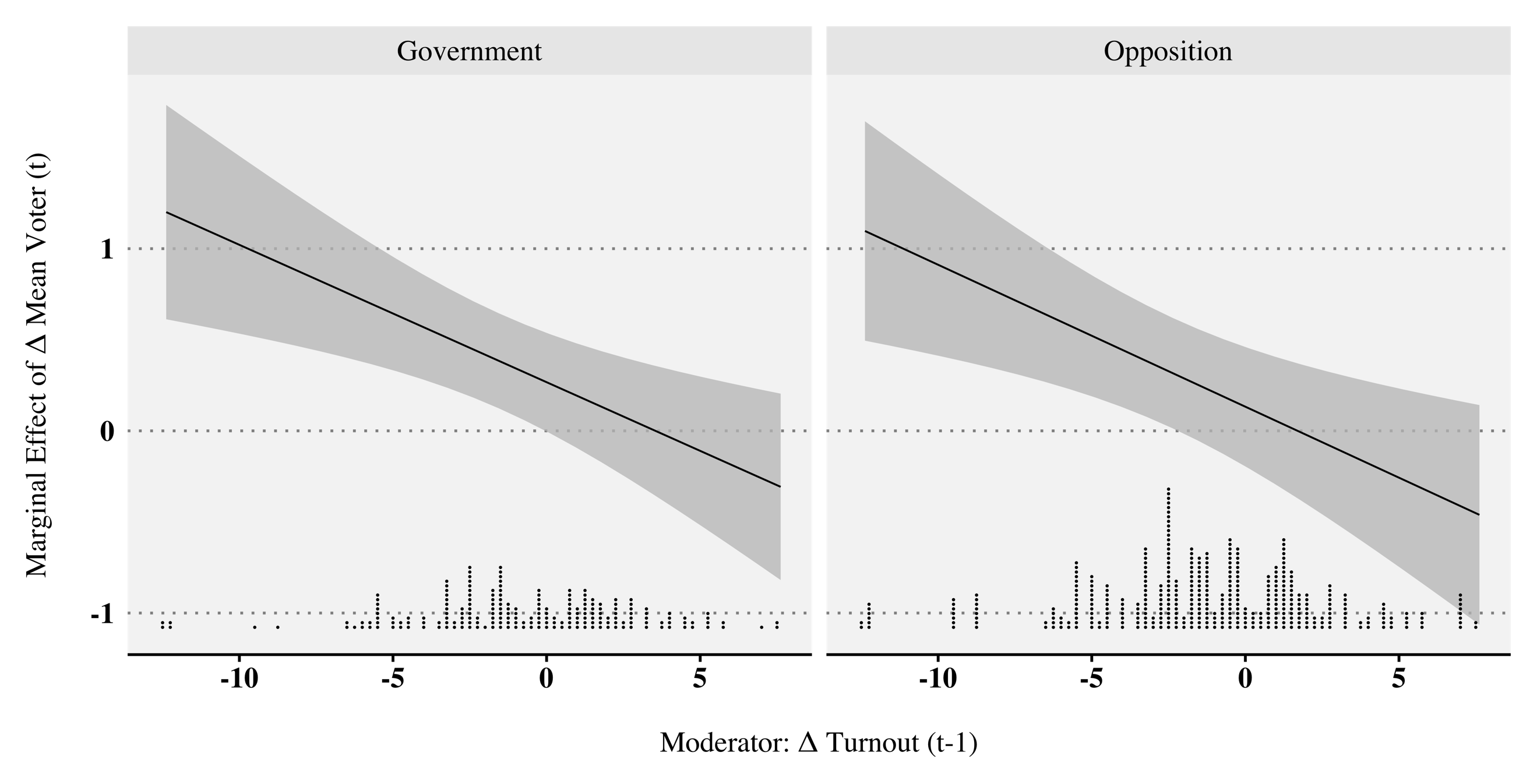


Figure A3.3: Government and Opposition Parties

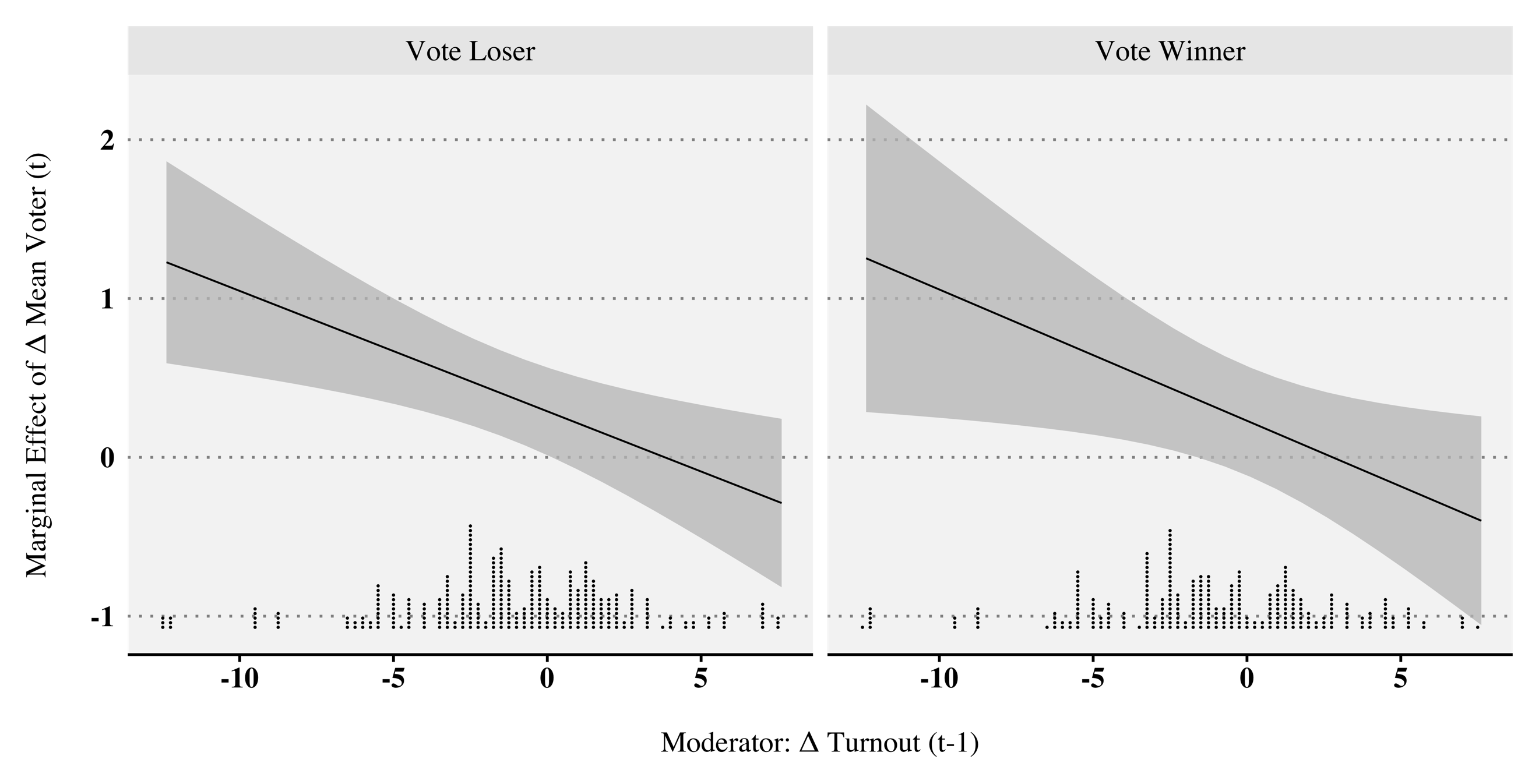


Figure A3.4: Vote Losing and Vote Winning Parties

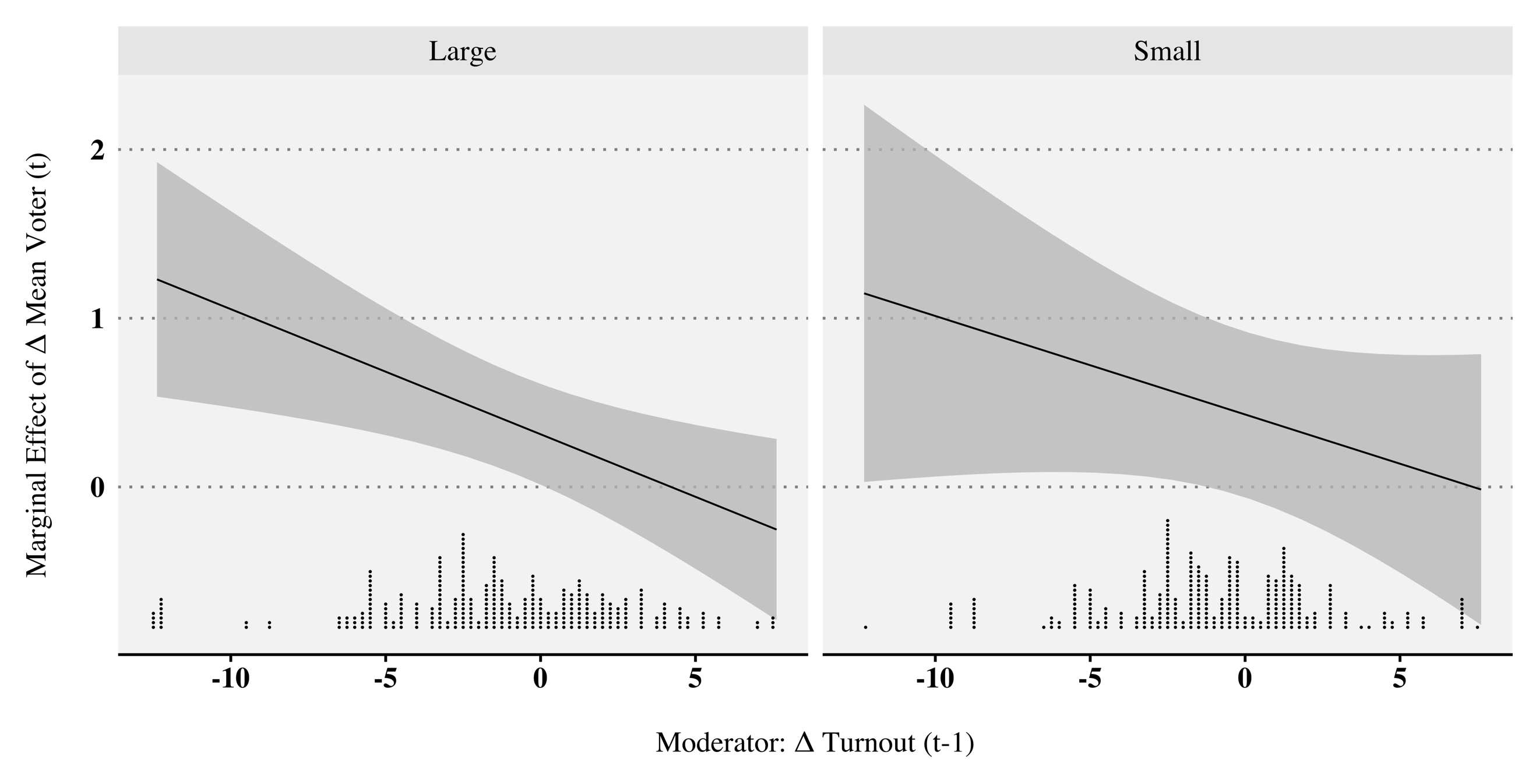


Figure A3.5: Small and Large Parties

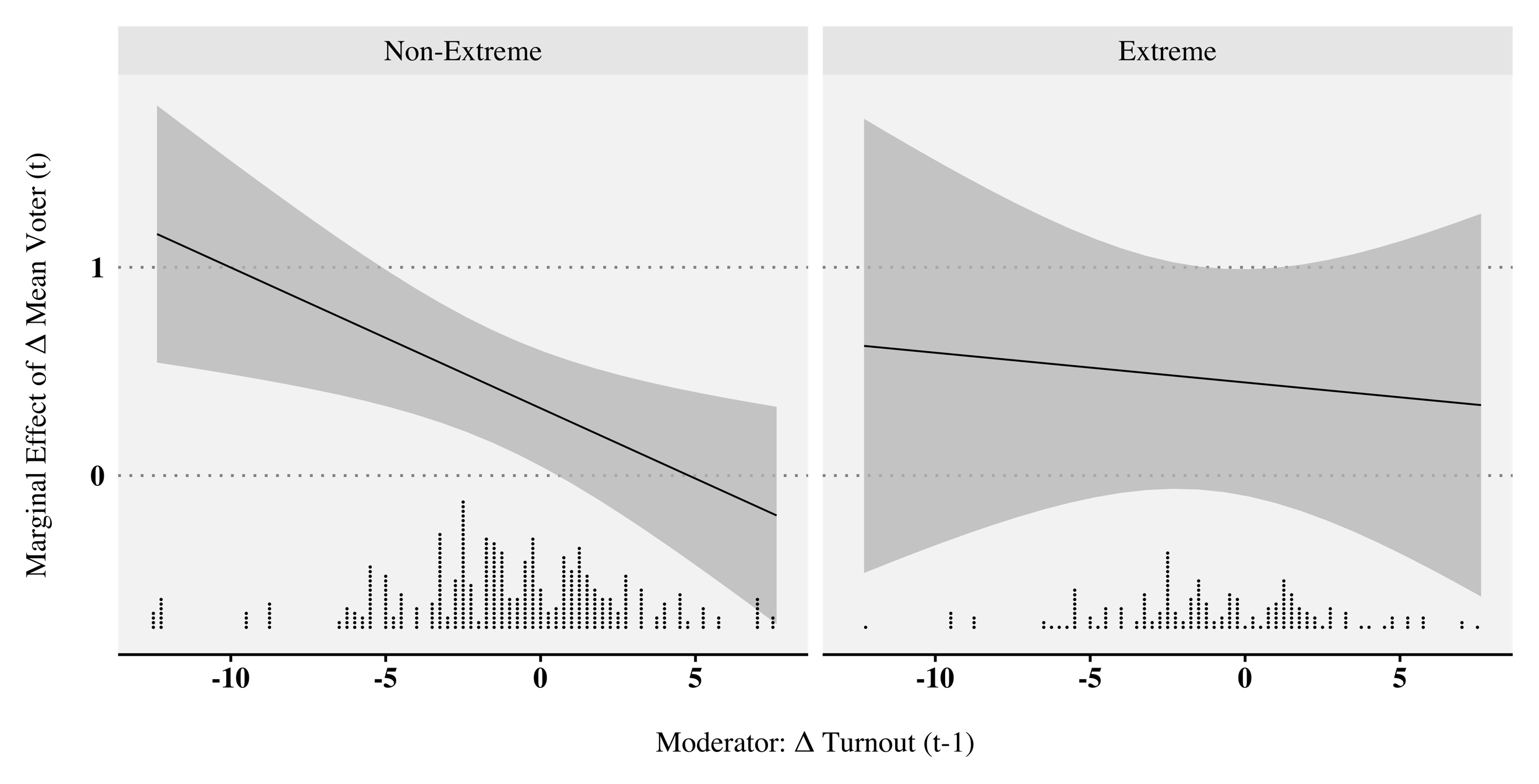


Figure A3.6: Centrist and Extreme Parties

**Table A4: Alternative Model Specifications**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Δ L-R (Logit)** | | | | | | | **Δ L-R (Bipolar)** |
|  | **Party FE** | **No FE** | **No LDV** | **Level LDV** | **Party Clust. SE** | **Date Clust. SE** | **No Clust. SE** | **Alt. DV** |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** | **Model 6** | **Model 7** | **Model 8** |
|  | | | | | | | | |
| Δ Party Left-Right | -.431\*\*\* | -.380\*\*\* |  |  | -.393\*\*\* | -.393\*\*\* | -.393\*\*\* | -.415\*\*\* |
| (t-1) | (.077) | (.068) |  |  | (.068) | (.050) | (.036) | (.058) |
| Party Left-Right (t-1) |  |  |  | -.303\*\*\* |  |  |  |  |
|  |  |  |  | (.064) |  |  |  |  |
| **Δ MV Position (t)** | **.283\*** | **.313\*\*** | **.287\*** | **.220\*** | **.292\*\*** | **.292\*\*** | **.292\*\*** | **4.844** |
|  | **(.155)** | **(.141)** | **(.151)** | **(.129)** | **(.118)** | **(.135)** | **(.119)** | **(3.203)** |
| Δ Turnout (t-1) | .003 | .002 | -.006 | -.005 | .004 | .004 | .004 | .034 |
|  | (.008) | (.008) | (.008) | (.006) | (.004) | (.008) | (.008) | (.164) |
| Δ Party Vote Share | .297 | .013 | -.049 | -.121 | .040 | .040 | .040 | 5.162 |
| (t-1) | (.367) | (.392) | (.422) | (.342) | (.480) | (.469) | (.603) | (9.858) |
| Party Opposition | .087 | .016 | -.032 | -.074 | .010 | .010 | .010 | .265 |
| Status (t-1) | (.062) | (.057) | (.055) | (.054) | (.048) | (.060) | (.061) | (.979) |
| Δ Globalization (t) | -.019 | -.014 | -.022 | -.010 | -.021 | -.021 | -.021 | -.643 |
|  | (.027) | (.023) | (.026) | (.021) | (.019) | (.023) | (.017) | (.523) |
| Δ GDP per Capita | -.472 | -.153 | -.147 | -.157 | -.246 | -.246 | -.246 | -5.280 |
| (log, t) | (.337) | (.278) | (.273) | (.221) | (.206) | (.278) | (.199) | (5.633) |
| **Δ MV (t) \*** | **-.084\*\*\*** | **-.071\*\*\*** | **-.061\*\*\*** | **-.049\*\*\*** | **-.075\*\*\*** | **-.075\*\*\*** | **-.075\*\*\*** | **-1.360\*\*** |
| **Δ Turnout (t-1)** | **(.029)** | **(.023)** | **(.021)** | **(.016)** | **(.020)** | **(.026)** | **(.026)** | **(.583)** |
| Constant | .277\*\*\* | .002 | -.209 | -.252\* | -.286\*\*\* | -.286 | -.286\* | -6.238 |
|  | (.057) | (.062) | (.222) | (.153) | (.054) | (.247) | (.149) | (4.712) |
| N | 651 | 651 | 686 | 686 | 651 | 651 | 651 | 651 |
| R-squared | .281 | .174 | .036 | .190 | .196 | .196 | .196 | .196 |
|  | | | | | | | | |
| *Notes*: \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | | | | | | |
| Two-way clustered standard errors in parentheses (Models 1-4, and 8). | | | | | | | | |

FE = Fixed Effects; LDV = Lagged Dependent Variable; SE = Standard Errors. The dependent variable * Party Position (t)* is defined as the difference in a party’s left-right position at election (*t)*, from its position at the previous election at (*t*-1). The independent variables are defined in the text. Two-way clustered standard errors are reported in parentheses (Models 1-4, and 8). Country fixed effects not shown (Models 3-8).

To address temporal dynamics, the parameters of an error correction model specification were estimated for short- and long-term effects of the covariates. The results support the findings of the main model that turnout changes affect mainstream party responsiveness in the following election, but a longer-term relationship between turnout and responsiveness was not identified.

**Table A5: Error Correction Model of Changes in Parties’ Left-Right Positions**

|  |  |  |
| --- | --- | --- |
|  | DV: Δ Party Left-Right Position | |
|  | | |
| Party Left-Right Position (t-1) | -.305\*\*\* |
|  | (.065) |
| **Δ Mean Voter Position (t)** | **.258\*** |
|  | **(.153)** |
| **Mean Voter Position (t-1)** | **.455** |
|  | **(.924)** |
| Δ Turnout (t-1) | -.005 |
|  | (.008) |
| Turnout (t-2) | .030 |
|  | (.058) |
| Δ Party Vote Share (t-1) | .048 |
|  | (.365) |
| Party Vote Share (t-2) | .242 |
|  | (.224) |
| Party Government Status (t-1) | -.042 |
|  | (.063) |
| Δ Globalization (t) | -.022 |
|  | (.024) |
| Globalization (t-1) | -.019 |
|  | (.012) |
| Δ GDP per Capita (log, t) | -.587 |
|  | (.364) |
| GDP per Capita (log, t-1) | .001 |
|  | (.129) |
| **Δ Mean Voter Position (t) \* Δ Turnout (t-1)** | **-.052\*\*\*** |
|  | **(.016)** |
| **Mean Voter Position (t-1) \* Turnout (t-2)** | **-.006** |
|  | **(.011)** |
| Constant | -.841 |
|  | (5.038) |
| N | 686 |
| R-squared | .200 |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | |
| *Notes*: Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | | |

It may be that low or high voter turnout contexts matter for party responsiveness (see, respectively, Dreyer and Bauer 2019; Hooghe, Dassonnville, and Oser 2019). Models that include an interaction for low and high turnout environments confirm that turnout levels do not condition the influence of changes in turnout on party responsiveness.

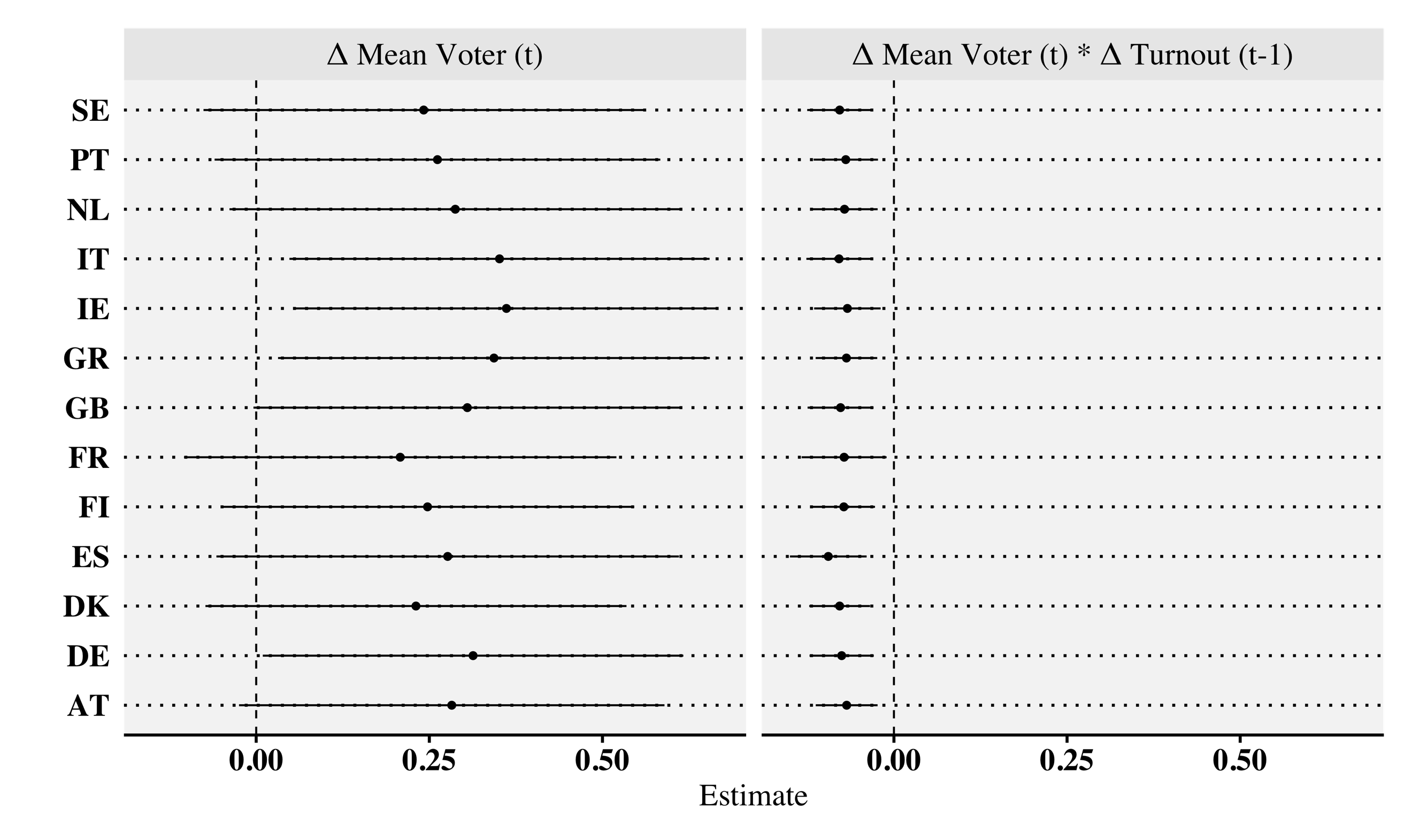
**Table A6: Models Stratified by Turnout Context (Low and High Turnout Elections)**

|  |  |
| --- | --- |
|  | **DV: Δ Party Left-Right Position** |
|  | |
| Δ Party left Right Position (t-1) | -.398\*\*\* |
|  | (.069) |
| **Δ Mean Voter Position (t)** | **.286** |
|  | **(.244)** |
| Δ Turnout (t-1) | -.007 |
|  | (.009) |
| Δ Party Vote Share (t-1) | .023 |
|  | (.366) |
| Party Government Status (t-1) | .014 |
|  | (.050) |
| Δ Globalization (t) | -.022 |
|  | (.025) |
| Δ GDP per Capita (log, t) | -.338 |
|  | (.291) |
| High Turnount (t-1) (Dummy) | .164 |
|  | (.109) |
| **Δ Mean Voter Position (t) \* Δ Turnout (t-1)** | **-.069\*\*** |
|  | **(.031)** |
| Δ Mean Voter Position (t) \* High Turnout (t-1) | .038 |
|  | (.304) |
| Δ Turnout (t-1) \* High Turnout (t-1) | .015 |
|  | (.019) |
| **Δ Mean Voter Position (t) \* Δ Turnout (t-1) \* High Turnout (t-1)** | **-.008** |
|  | **(.070)** |
| Constant | -.421\* |
|  | (.235) |
| N | 651 |
| R-squared | .200 |
|  | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | |
| Two-way clustered standard errors in parentheses. Country fixed effects not shown. | |

**Table A7: Including Decade Dummy Variables**

|  |  |  |
| --- | --- | --- |
|  | DV: Δ Party Left-Right Position | |
|  | **Model 1** | **Model 2** |
|  | | |
| Party Left-Right Position (t-1) | -.394\*\*\* | -.398\*\*\* |
|  | (.072) | (.071) |
| **Mean Voter Position (t)** | **.383\*\*** | **.286\*** |
|  | **(.154)** | **(.152)** |
| Turnout (t-1) | .008 | .004 |
|  | (.008) | (.007) |
| Party Vote Share (t-1) | .075 | .034 |
|  | (.390) | (.379) |
| Party Government Status (t-1) | .001 | .008 |
|  | (.048) | (.047) |
| Globalization (t) | -.018 | -.018 |
|  | (.029) | (.028) |
| GDP per Capita (log, t) | -.627\*\* | -.645\*\* |
|  | (.319) | (.299) |
| 1970-1979 [Base: 2000-2009] | .363\*\* | .357\*\* |
|  | (.174) | (.171) |
| 1980-1989 | .204\* | .180 |
|  | (.123) | (.119) |
| 1990-1999 | .054 | .063 |
|  | (.111) | (.113) |
| 2010-2019 | -.078 | -.098 |
|  | (.116) | (.116) |
| **Mean Voter Position (t) \* Turnout (t-1)** |  | **-.075\*\*\*** |
|  |  | **(.023)** |
| Constant | -.263 | -.226 |
|  | (.235) | (.223) |
| N | 651 | 651 |
| R-squared | .198 | .208 |
|  | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | |
| *Notes*: Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | |
|  | | |

The possibility that the results are driven by a single country case was checked. We conducted jackknife analyses, and Figure A4 shows the corresponding results. Although the base term becomes insignificant in several cases, the size of the coefficient remains stable. More importantly, the interaction term is – in all cases – negative and statistically significant confirming the conditioning effect of turnout change on party responsiveness. We can thus conclude that our results are not driven by a single country in our data set.

**Figure A4: Jackknife Analyses**

*Notes*: Error bars denote 95% confidence intervals.

With regard to the public opinion measure, we considered only those surveys that were conducted at maximum one year before the election in question. We lack the information as to when the single manifestos were drafted. However, it might be possible that public opinion data that has been collected too far ahead of an election affects the accuracy of our estimates. In order to account only for survey data that has been collected during the campaign periods, we have re-run the model while limiting the data window to nine and six months. This did not affect the results of the analysis in substantial ways.

**Table A8: Alternative Public Opinion Windows for the Eurobarometer Surveys**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | DV: Δ Party Left-Right Position | | | |
|  | 9 Months Window | | 6 Months Window | |
|  | Model 1 | Model 2 | Model 3 | Model 4 |
|  | | | | |
| Δ Party Left-Right Position (t-1) | -.391\*\*\* | -.393\*\*\* | -.391\*\*\* | -.393\*\*\* |
|  | (.071) | (.069) | (.073) | (.071) |
| **Δ Mean Voter Position (t)** | **.377\*\*\*** | **.288\*\*** | **.375\*\*** | **.287\*\*** |
|  | **(.146)** | **(.141)** | **(.150)** | **(.144)** |
| Δ Turnout (t-1) | .008 | .004 | .008 | .004 |
|  | (.008) | (.007) | (.008) | (.007) |
| Δ Party Vote Share (t-1) | .084 | .046 | .082 | .040 |
|  | (.376) | (.367) | (.374) | (.365) |
| Party Government Status (t-1) | .005 | .011 | .0001 | .007 |
|  | (.051) | (.050) | (.051) | (.050) |
| Δ Globalization (t) | -.025 | -.021 | -.025 | -.021 |
|  | (.025) | (.025) | (.025) | (.025) |
| Δ GDP per Capita (log, t) | -.254 | -.266 | -.264 | -.275 |
|  | (.305) | (.284) | (.308) | (.287) |
| **Δ Mean Voter Position (t) \*** |  | **-.074\*\*\*** |  | **-.074\*\*\*** |
| **Δ Turnout (t-1)** |  | **(.025)** |  | **(.025)** |
| Constant | -.311 | -.285 | -.309 | -.282 |
|  | (.215) | (.203) | (.215) | (.202) |
| N | 648 | 648 | 644 | 644 |
| R-squared | .186 | .196 | .183 | .193 |
|  | | | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | | |
| *Notes*: Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | | | |

The MARPOR data set contains several election manifestos which were not official programs published by the party. Instead, in these rare instances, the estimates are based on combinations of other sources (e.g., party bloc programs). To ensure that the results are not mainly due to these less reliable position scores, we re-run the analysis while restricting the observation to actual programs of parties. Again, this does not alter our results.

**Table A9: Omitting Parties with Estimated Manifestos Scores**

|  |  |  |
| --- | --- | --- |
|  | | |
|  | DV: Δ Party Left-Right Position | |
|  | Model 1 | Model 2 |
|  | | |
| Δ Party Left-Right Position (t-1) | -.376\*\*\* | -.380\*\*\* |
|  | (.057) | (.056) |
| **Δ Mean Voter Position (t)** | **.404\*\*\*** | **.313\*\*** |
|  | **(.153)** | **(.145)** |
| Δ Turnout (t-1) | .006 | .002 |
|  | (.008) | (.008) |
| Δ Party Vote Share (t-1) | .469 | .406 |
|  | (.408) | (.404) |
| Party Government Status (t-1) | .007 | .015 |
|  | (.051) | (.050) |
| Δ Globalization (t) | -.025 | -.021 |
|  | (.028) | (.027) |
| Δ GDP per Capita (log, t) | -.342 | -.343 |
|  | (.339) | (.314) |
| **Δ Mean Voter Position (t) \*** |  | **-.080\*\*\*** |
| **Δ Turnout (t-1)** |  | **(.027)** |
| Constant | -.299 | -.272 |
|  | (.215) | (.202) |
| N | 596 | 596 |
| R-squared | .177 | .189 |
|  | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | |
| *Notes*: Two-way clustered standard errors in parentheses. Country fixed effects not shown.  Exclusion based on variable “progtype” (MARPOR data). | | |

Mean voter shifts are not always substantial in size and might rather be the result of some measurement error. It might thus be possible that the presented results are driven by these marginal shifts in public opinion. Running the models while forcing all public opinion shifts that are smaller than one standard deviation of the Mean Voter Position change variable to zero, however, does again not change the results substantially. Similarly, our results are not affected if we exclude these cases from the analysis.

**Table A10: Addressing Minor Changes in the Mean Voter Position**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | **DV: Δ Party Left-Right Position** | | | |
|  | **Minor**  **changes = 0** | | **Minor**  **changes excluded** | |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** |
|  | | | | |
| Δ Party Left-Right Position (t-1) | -.388\*\*\* | -.393\*\*\* | -.477\*\*\* | -.485\*\*\* |
|  | (.070) | (.068) | (.113) | (.105) |
| **Δ Mean Voter Position (t)** | **.290\*** | **.176** | **.351\*\*** | **.194** |
|  | **(.161)** | **(.145)** | **(.161)** | **(.159)** |
| Δ Turnout (t-1) | .009 | .007 | .009 | .008 |
|  | (.008) | (.007) | (.010) | (.009) |
| Δ Party Vote Share (t-1) | .059 | .004 | .032 | -.113 |
|  | (.360) | (.347) | (.848) | (.755) |
| Party Government Status (t-1) | .007 | .012 | .054 | .052 |
|  | (.052) | (.051) | (.099) | (.094) |
| Δ Globalization (t) | -.024 | -.021 | -.029 | -.029 |
|  | (.024) | (.024) | (.020) | (.027) |
| Δ GDP per Capita (log, t) | -.175 | -.192 | -.088 | -.084 |
|  | (.300) | (.280) | (.181) | (.183) |
| **Δ Mean Voter Position (t) \* Δ Turnout (t-1)** |  | **-.078\*\*\*** |  | **-.079\*\*** |
|  |  | **(.026)** |  | **(.035)** |
| Constant | -.335 | -.304 | -.217 | -.167 |
|  | (.214) | (.206) | (.281) | (.257) |
| N | 651 | 651 | 174 | 174 |
| R-squared | .178 | .187 | .414 | .438 |
|  | | | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | | | |
| *Notes*: Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | | | |

We control for alternative factors that might both affect changes in turnout as well as party responsiveness. These factors are: globalization; election competitiveness; party polarization; and the vote share of extreme parties. We interact these variables with the change in the mean voter position to investigate whether and to which extent our relationship of interest is affected. The values for changes in globalization are again provided by the KOF Globalization Index (Sturm, Haelg, and Gygli 2018). Election competitiveness is operationalized as the difference in the vote share between the strongest and the second strongest party in the previous election. We measure party polarization as the absolute distance on the left-right scale between the two strongest parties in the previous election. The vote share of extreme parties at t-1 is the sum of the vote share of the radical left and radical right parties.

**Table A11: Controlling for Conditioning Variables**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **DV: Δ Party Left-Right Position** | | | | |
|  | **Model 1** | **Model 2** | **Model 3** | **Model 4** | **Model 5** |
|  | | | | | |
| Δ Party Left-Right Position (t-1) | -.392\*\*\* | -.394\*\*\* | -.391\*\*\* | -.396\*\*\* | -.396\*\*\* |
|  | (.067) | (.068) | (.070) | (.070) | (.070) |
| **Δ Mean Voter Position (t)** | **.565\*\*\*** | **.348\*\*\*** | **.272\*\*** | **.291\*\*** | **.573\*\*\*** |
|  | **(.165)** | **(.134)** | **(.136)** | **(.143)** | **(.148)** |
| Δ Turnout (t-1) | .006 | .006 | .004 | .003 | .007 |
|  | (.007) | (.007) | (.007) | (.007) | (.007) |
| Δ Party Vote Share (t-1) | .025 | .082 | .114 | .095 | .198 |
|  | (.386) | (.345) | (.367) | (.371) | (.383) |
| Party Opposition Status (t-1) | .010 | .010 | .025 | .013 | .027 |
|  | (.051) | (.048) | (.051) | (.049) | (.051) |
| Δ Globalization (t) | -.021 | -.020 | -.028 | -.018 | -.024 |
|  | (.023) | (.024) | (.024) | (.025) | (.022) |
| Δ GDP per Capita (log, t) | -.345 | -.293 | -.260 | -.241 | -.376 |
|  | (.289) | (.270) | (.260) | (.286) | (.277) |
| Δ Mean Voter Position (t) \* Δ Globalization (t) | -.154\*\*\* |  |  |  | -.141\*\*\* |
|  | (.052) |  |  |  | (.050) |
| Δ Competitiveness (t-1) |  | .428 |  |  | .315 |
|  |  | (.440) |  |  | (.457) |
| Δ Mean Voter Position (t) \* Δ Competitiveness (t-1) |  | 3.439\* |  |  | 3.338\* |
|  |  | (1.876) |  |  | (1.959) |
| Δ MP Pos. Distance (t-1) |  |  | -.052 |  | -.059 |
|  |  |  | (.041) |  | (.038) |
| Δ Mean Voter Position (t) \* Δ MP Pos. Distance (t-1) |  |  | -.417\*\* |  | -.383\*\* |
|  |  |  | (.198) |  | (.183) |
| Δ Vote Share Extreme Parties (t-1) |  |  |  | .686 | .735 |
|  |  |  |  | (.689) | (.658) |
| Δ Mean Voter Position (t) \* Δ Vote Share Extreme Parties (t-1) |  |  |  | -1.490 | -1.410 |
|  |  |  |  | (3.183) | (3.169) |
| **Δ Mean Voter Position (t) \* Δ Turnout (t-1)** | **-.081\*\*\*** | **-.056\*\*** | **-.078\*\*\*** | **-.074\*\*\*** | **-.063\*\*** |
|  | **(.022)** | **(.025)** | **(.025)** | **(.026)** | **(.026)** |
| Constant | -.243 | -.283 | -.344\* | -.314 | -.328 |
|  | (.201) | (.214) | (.205) | (.221) | (.230) |
| N | 651 | 651 | 651 | 651 | 651 |
| R-squared | .204 | .203 | .206 | .198 | .221 |
|  | | | | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1, Two-way clustered standard errors in parentheses. | | | | | |

**Tests for Harmful and Benign Mean Voter Shifts**

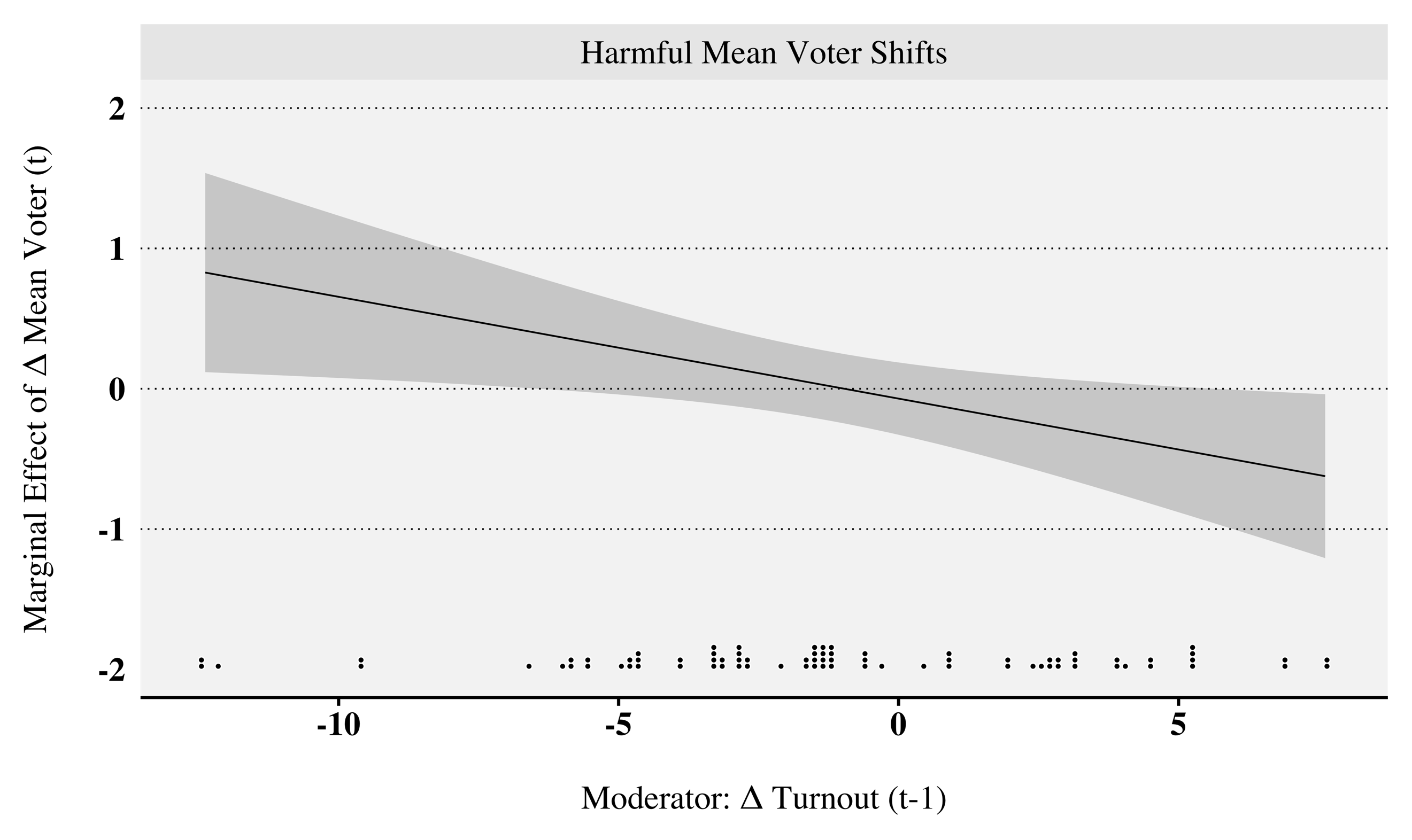
We follow Adams et al. (2004) and define harmful and benign public opinion changes based on the direction and magnitude of mean voter shifts with respect to parties’ core ideologies. When mean voter shifts away from a focal party, this is labelled a “harmful” mean voter shift, and when the mean voter shifts toward the party this is labelled “benign”. In a first step, we consider only those public opinion shifts that are larger than one standard deviation of the mean voter shift variable. Thus, we consider only those elections in which large public opinion shifts occur. All other elections are coded as “non-shifting”. Second, we categorize political parties based on the core ideology that positions them either as clearly to the left or the right of the mean voter. Radical left, Green, and Social Democratic parties form the group of left parties and Conservative, Christian Democratic, and Radical Right parties were classified as right parties.[[1]](#footnote-1) Thus, left parties were confronted with harmful public opinion changes if the Mean Voter position shifted to the right and with benign public opinion shifts if the Mean Voter shifted to the left. The opposite applies to right parties.

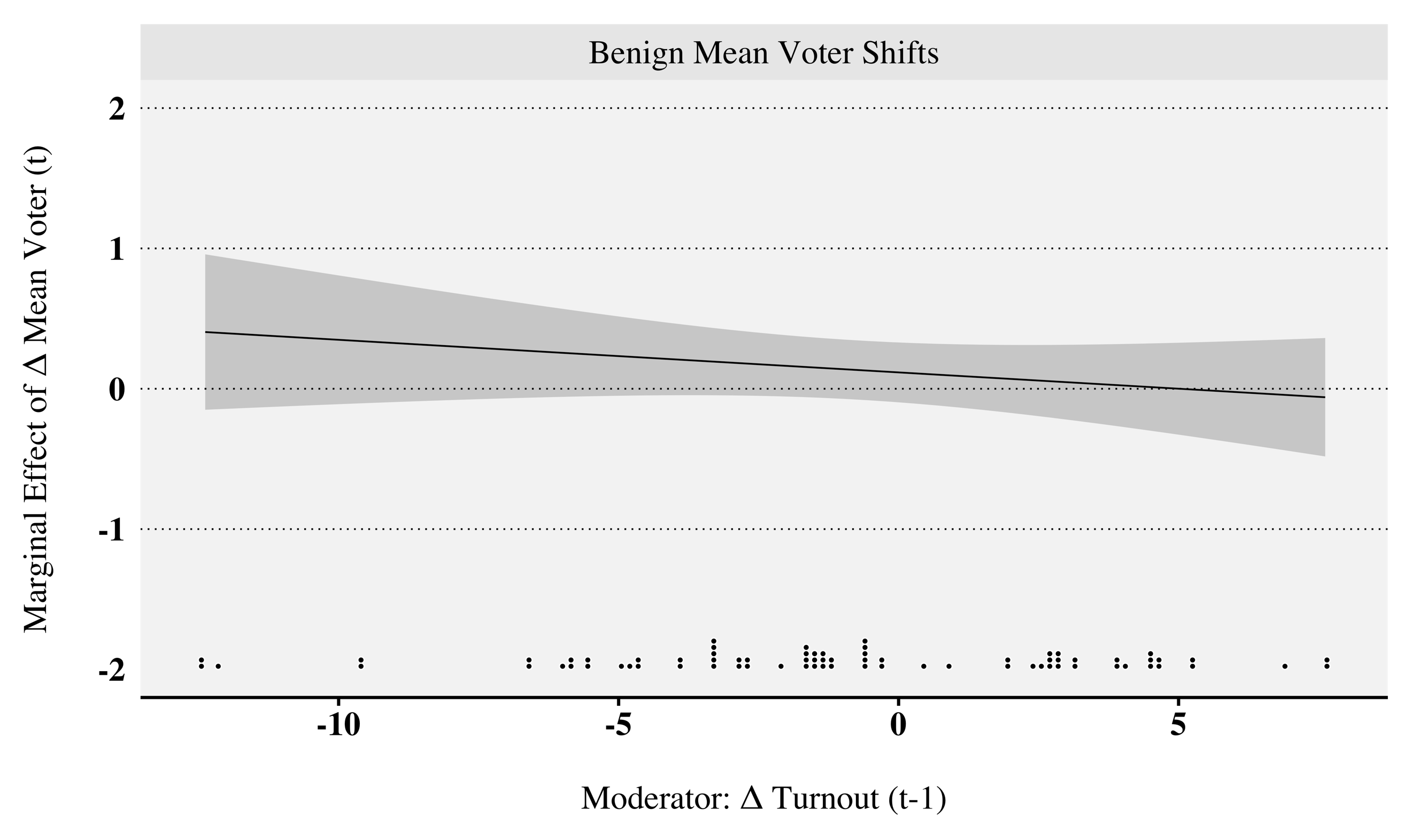
We evaluate whether political parties respond to benign *and*harmful public opinion shifts after turnout decline in Table A12. Model 1 includes all political parties, and Model 2 includes only dominant parties following the classification by De Vries and Hobolt (2020). Both models suggest that political parties predominantly respond to harmful public opinion shifts. The interaction terms between harmful mean voter shifts and turnout changes are significant and negative. At the same time, the interaction terms for benign mean voter shifts are close to zero, which is in line with findings presented by Ferland (2020). Finally, the results continue to support our core hypothesis, because party responsiveness to harmful public opinion shifts is estimated to increase if turnout has declined in the previous election.

**Table A12: Harmful and Benign Mean Voter Shifts and Party Responsiveness**

|  |  |  |
| --- | --- | --- |
|  | DV: Δ Party Left-Right Position | |
|  | **All parties** | **Dominant parties** | |
|  | **Model 1** | **Model 2** | |
|  | | | |
| Δ Party Left-Right Position (t-1) | -.404\*\*\* | -.434\*\*\* | |
|  | (.085) | (.111) | |
| Δ Turnout (t-1) | .023 | .028 | |
|  | (.016) | (.019) | |
| Δ Party Vote Share (t-1) | .121 | .548 | |
|  | (.432) | (.489) | |
| Government (t-1) | .026 | .041 | |
|  | (.055) | (.062) | |
| Δ Globalization (t) | -.026 | -.032 | |
|  | (.025) | (.029) | |
| Δ GDP (log, t) | -.183 | -.188 | |
|  | (.308) | (.308) | |
| **Harmful MV Shift** | **-.031** | **-.070** | |
|  | **(.140)** | **(.157)** | |
| **Benign MV Shift** | **.059** | **.117** | |
|  | **(.128)** | **(.130)** | |
| **Harmful MV Shift \* Δ Turnout (t-1)** | **-.069\*\*** | **-.073\*\*** | |
|  | **(.032)** | **(.036)** | |
| **Benign MV Shift \* Δ Turnout (t-1)** | **-.002** | **-.023** | |
|  | **(.027)** | **(.027)** | |
| Constant | -.417\* | -.443\* | |
|  | (.243) | (.252) | |
| N | 496 | 356 | |
| R-squared | .190 | .224 | |
|  | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | |
| Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | |

**Figure A5: Marginal Effects Plots for Harmful and Benign Mean Voter Shifts, Based on Table A12 Model 2 Estimates**

****



*Notes*: Dotted lines denote 90% confidence intervals. The dot plots show the distribution of * Turnout* (t-1).

In the article, we discuss the possibility that parties influence citizen preferences (Lenz 2012; Achen and Bartels 2016). If this is the case, we should find the pattern of voters and parties moving together consistently. However, what we find is that citizens and parties systematically move together *only* when turnout decreased in the previous election. Thus, this reversed relationship does not appear to be occurring uniformly throughout the countries and time period in our data. In addition, we analyze existing data to further explore the issue. Our estimates of public opinion in the manuscript, which are based on 12-month windows before the elections, could be influenced by surveys fielded during the last four months of an election campaign. In Models 1-2 of Table A13 below, we estimate the effect of changes in the mean voter position on changes in parties’ left right positions. But in these analyses, we only rely on left-right placements from 4-12 months *before* the election, i.e., estimates of public opinion are from before the time that most election manifestos are published. If parties were influencing public opinion, we would expect that the estimates of responsiveness would become significantly diminished or disappear based on the measures of public opinion 4-12 months prior to the election. The coefficient on the conditioning effect of turnout on responsiveness that we report in the main table in the article is approximately the same as the estimate in Table A13. In Table A13 Model 2, the estimate on the interaction variable (Δ Mean Voter Position (t) \* Δ Turnout (t-1)) is -.069 compared to -.075 in the article (both of these estimates are statistically significant).

**Table A13: Analyses of Changes in Party Position, based on Mean Voter (t) Estimates from 4 to 12 Months Prior to the Election**

|  |  |  |
| --- | --- | --- |
|  | DV: Δ Party Left-Right Position | |
|  | **Model 1** | **Model 2** | |
|  | | | |
| Δ Party Left-Right Position (t-1) | -.390\*\*\* | -.395\*\*\* | |
|  | (.072) | (.071) | |
| **Δ Mean Voter (t)** | **.319\*\*** | **.241** | |
| **[4 to 12 months windows]** | **(.157)** | **(.159)** | |
| Δ Turnout (t-1) | .001 | -.002 | |
|  | (.008) | (.008) | |
| Δ Party Vote Share (t-1) | -.115 | -.184 | |
|  | (.360) | (.355) | |
| Government (t-1) | -.015 | -.011 | |
|  | (.055) | (.054) | |
| Δ Globalization (t) | -.028 | -.023 | |
|  | (.025) | (.025) | |
| Δ GDP (log, t) | -.210 | -.258 | |
|  | (.302) | (.293) | |
| **Δ Mean Voter (t) \* Δ Turnout (t-1)** |  | **-.069\*\*** | |
|  |  | **(.029)** | |
| Constant | -.381 | -.355 | |
|  | (.260) | (.242) | |
| N | 623 | 623 | |
| R-squared | .182 | .189 | |
|  | | |
| \*\*\*p < .01; \*\*p < .05; \*p < .1 | | |
| Two-way clustered standard errors in parentheses. Country fixed effects not shown. | | |

1. We exclude Liberal, Agrarian, and Regional parties as harmful and benign public opinion shifts cannot be clearly defined for these party families. [↑](#footnote-ref-1)